

REMARKS

The Examiner indicated that claims 8, 16, 47, and 54 are allowed. Applicants gratefully acknowledge the Examiner's indication of allowed subject matter.

The Examiner objected to claims 9, 26, 58, and 59 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants gratefully acknowledge the Examiner's indication of allowable subject matter and have accordingly rewritten claims 9, 26, 58, and 59 in independent form.

The Examiner rejected claims 1, 4-7, 10, 11, 14, 15, 17-19, 21, 23-25, 28-34, 36-41, 43, 46, 49, 52, 53, 55-57, 60-69, 72 and 74 under 35 U.S.C. §103(a) as allegedly being unpatentable over Li in view of Beaman et al. and Sinclair.

The Examiner rejected claims 2, 3, 12, 35, 44, 45, and 50 under 35 U.S.C. §103(a) as allegedly unpatentable over Li, Beaman and Sinclair as in claims 1, 4, 6, 11, 14, 17, 18, 32-34, and 37-42, in view of Voltz.

The Examiner rejected claims 20, 22, 71 and 73 under 35 U.S.C. §103(a) as allegedly being unpatentable over Li, Beaman and Sinclair as in claims 1, 4, 5-7, 10, 11, 14, 15, 17-19, 21, 23-25, 28-34, 36-38, 43, 46, 49, 52, 53, 55-57, 60-69, and 72, in view of Chan et al.

The Examiner rejected claims 27, 48, and 57 under 35 U.S.C. §103(a) as allegedly being unpatentable over Li, Beaman and Sinclair as in claims 1, 4, 6, 11, 14, 17, 18, 32-34, and 37-42, in view of Kresge et al.

Applicants respectfully traverse the §103(a) rejections.

35 U.S.C. §103(a): Li in view of Beaman and Sinclair

The Examiner rejected claims 1, 4-7, 10, 11, 14, 15, 17-19, 21, 23-25, 28-34, 36-41, 43, 46, 49, 52, 53, 55-57, 60-69, 72 and 74 under 35 U.S.C. §103(a) as allegedly being unpatentable over Li in view of Beaman et al. and Sinclair.

Applicants respectfully contend that claims 1 and 43 are not unpatentable over Li in view of Beaman, because Li in view of Beaman and Sinclair does not teach or suggest each and every feature of claims 1 and 43. For example, Li in view of Beaman and Sinclair does not teach or suggest "wherein the at least two end contacts at the first end of the button are raised so as to extend beyond the dielectric core in a first direction parallel to an axis of the button, wherein the at least two end contacts at the second end of the button are raised so as to extend beyond the dielectric core in a second direction parallel to the axis of the button, and wherein the second direction is opposite the first direction".

The Examiner admits that Li does not disclose the preceding feature of claims 1 and 43. The Examiner argues: "Beaman discloses contacts including a surface concavity 16 extending beyond dielectric core 17. Similarly, Sinclair discloses contacts including a surface concavity (50, 52) extending beyond dielectric core 32. At the time of the invention, it would have been obvious to construct the Li contact ends to a surface concavity extending beyond the dielectric core as taught in Beaman and Sinclair. The suggestion for doing so would provide a good electrical connection and wiping surface as taught in Beaman (col. 3, lines 59-65) and Sinclair (col. 7, lines 25-30)."

In response, Applicants respectfully contend the combination of Li, Beaman, and Sinclair does not teach or suggest the preceding feature of claims 1 and 43. Li does not show end contacts raised above and below the dielectric core. Beaman discloses an end contact 16 raised above the top end of the dielectric core, but does not disclose an end contact raised below the dielectric core. Sinclair does not show any end contact raised above or below the dielectric core, since contact dimples 50 and 52 are not end contacts but rather are contacts not located at the ends of the terminal 40. Therefore, claims 1 and 43 are not unpatentable over Li in view of Beaman and Sinclair, because the combination of Li, Beaman, and Sinclair does not teach or suggest the preceding feature of claims 1 and 43.

In addition, Applicants respectfully contend that the Examiner's argument for modifying the contact ends in Li to extend beyond the dielectric core as allegedly disclosed in Beaman and Sinclair is not persuasive with respect to both the "good electrical connection" and the "good ... wiping surface" arguments.

As to the Examiner's "good electrical connection" arguments pertaining to Beaman, col. 3, lines 59-65 of man does not teach or suggest anything about a good electrical connection. As to the Examiner's "good electrical connection" arguments pertaining to Sinclair, col. 7, lines 25-30 of Sinclair discusses factors contributing to a "high quality contact" and none of these factors relate to contact dimples 50 and 52. Thus, the Examiner cannot support the Examiner's assertion that contact dimples 50 and 52 contribute to a "good electrical connection" in Sinclair.

Moreover, modifying the contact ends in Li to extend beyond the dielectric core is not

needed for electrical connection purpose, because Li's buttons 18 already maintain good electrical contact. For example, col. 5, lines 45-48 of Li states: "The resilience of the buttons 18 allows for some degree of nonplanarity in the components, while maintaining **good electrical contact** between the land grid arrays of contacts" (emphasis added). As an another example, Li's Abstract states: "A high local contact force is produced at each end of the conducting element against an opposing electrical contact or contact pad of a circuit device to establish a **good electrical connection** with the interposer which thus electrically interconnects the land grid array and the circuit component" (emphasis added).

In addition, col. 5, line 63 - col. 6, line 4 of Li states: "The rigidity of the conducting element 22 is chosen so that when button 18 is compressed or the compressive force is released, the contact areas urge an identical or substantially corresponding displacement in both element 22 and shell 26. This allows ends 13 and 17 of button 18 to establish and maintain contact with contact pad 21 of array 12 and contact pad 25 of board 16, respectively, and to make the electrical connection between corresponding pads 21 and 25 by means of the electrical conductors running through button 18."

Since Li's buttons 18 already maintain good electrical contact, extending the contact ends in Li beyond the dielectric core would add unnecessary cost and complexity to Li's invention.

Therefore, Applicant's respectively contend that it is not obvious to extend the contact ends in Li beyond the dielectric core for the purpose of maintaining a good electrical connection.

As to the Examiner's "good wiping surface" arguments pertaining to Sinclair, col. 7, lines 25-30 of Sinclair does not teach or suggest anything about a "good wiping surface". As to the

Examiner's "good wiping surface" arguments pertaining Beaman, the ball shaped contact 16 in Beaman is inapplicable to Li. In accordance with FIG. 2 of Beaman, col. 3, lines 39-41: "The wiping action of the probe is caused by the ball shaped contact (16) pressing against and sliding along the surface (23) of the bond pad (21)." Therefore, Li cannot implement the wiping action disclosed by Beaman, since the button 18 in Li does not have sliding motion along the outer surface of the contact pads 21 and 25. Thus, the button in 18 in Li cannot engage in wiping motion of the type that is improved by the ball shape of Beaman's contact 18, and therefore cannot benefit from incorporating ball-shaped contacts.

Interestingly, Li achieves good wiping action in another manner as disclosed in Li, col. 6, lines 29-33 which states: "Because during compression the wire tips are both rotated (see Timoshenko) and swept radially out (because of the approximate conservation of the elastomer volume), the **wiping action** combined with the pressure facilitates the formation of a redundant, low resistance contact" (emphasis added).

Accordingly, extending the contact ends in Li beyond the dielectric core would add unnecessary cost and complexity to Li's invention.

Therefore, Applicant's respectively contend that it is not obvious to extend the contact ends in Li beyond the dielectric core for the purpose of maintaining a good wiping surface.

Based on the preceding arguments, Applicants respectfully maintain that claims 1 and 43 are not unpatentable over Li in view of Beaman, and that claims 1 and 43 are in condition for allowance. Since claims 4-6, 7, 10-11, 14, 15, 17-19, 21, 23-25, 28-34, 36-38, 40-41 depend from claim 1, Applicants contend that claims 4-6, 7, 10-11, 14, 15, 17-19, 21, 23-25, 28-34, 36-

38, 40-41 are likewise in condition for allowance. Since claims 46, 49, 52-53, 55-57, 60-69, 72 and 74 depend from claim 43, Applicants contend that claims 46, 49, 52-53, 55-57, 60-69, 72 and 74 are likewise in condition for allowance.

35 U.S.C. §103(a): Li in view of Beaman and Sinclair in View of Voltz

The Examiner rejected claims 2, 3, 12, 35, 44, 45, and 50 under 35 U.S.C. §103(a) as allegedly unpatentable over Li, Beaman and Sinclair as in claims 1, 4, 6, 11, 14, 17, 18, 32-34, and 37-42, in view of Voltz.

Since claims 2, 3, 12, and 35, depend from claim 1, which Applicants have argued *supra* to be not unpatentable under 35 U.S.C. §103(a), Applicants maintain that claims 2, 3, 12, and 35 are likewise not unpatentable under 35 U.S.C. §103(a).

Since claims 44, 45, and 50, depend from claim 43, which Applicants have argued *supra* to be not unpatentable under 35 U.S.C. §103(a), Applicants maintain that claims 44, 45, and 50 are likewise not unpatentable under 35 U.S.C. §103(a).

35 U.S.C. §103(a): Li in view of Beaman and Sinclair in View of Chan

The Examiner rejected claims 20, 22, 71 and 73 under 35 U.S.C. §103(a) as allegedly being unpatentable over Li, Beaman and Sinclair as in claims 1, 4, 5-7, 10, 11, 14, 15, 17-19, 21, 23-25, 28-34, 36-38, 43, 46, 49, 52, 53, 55-57, 60-69, and 72, in view of Chan et al.

Since claims 20 and 22, depend from claim 1, which Applicants have argued *supra* to be not unpatentable under 35 U.S.C. §103(a), Applicants maintain that claims 20 and 22 are likewise not unpatentable under 35 U.S.C. §103(a).

Since claims 71 and 73, depend from claim 43, which Applicants have argued *supra* to be not unpatentable under 35 U.S.C. §103(a), Applicants maintain that claims 71 and 73 are likewise not unpatentable under 35 U.S.C. §103(a).

35 U.S.C. §103(a): Li in view of Beaman and Sinclair in View of Kresge

The Examiner rejected claims 27, 48, and 57 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Li, Beaman and Sinclair as in claims 1, 4, 6, 11, 14, 17, 18, 32-34, and 37-42, in view of Kresge et al.

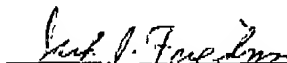
Since claim 27 depends from claim 1, which Applicants have argued *supra* to be not unpatentable under 35 U.S.C. § 103(a), Applicants maintain that claim 27 is likewise not unpatentable under 35 U.S.C. § 103(a).

Since claims 48 and 57, depend from claim 43, which Applicants have argued *supra* to be not unpatentable under 35 U.S.C. § 103(a), Applicants maintain that claims 48 and 57 are likewise not unpatentable under 35 U.S.C. § 103(a).

CONCLUSION

Based on the preceding arguments, Applicants respectfully believe that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If the Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invites the Examiner to contact Applicants' representative at the telephone number listed below. The Director is hereby authorized to charge and/or credit Deposit Account No. 09-0457.

Date: 05/10/04



Jack P. Friedman
Registration No. 44,688

Schmeiser, Olsen & Watts
3 Lear Jet Lane, Suite 201
Latham, New York 12110
(518) 220-1850